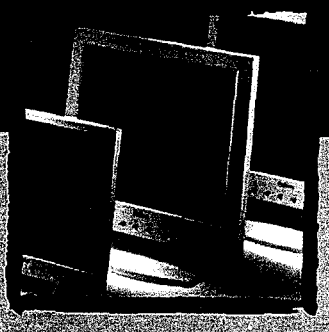
Belinea



SERVICE MANUAL
TFT-Display
Belinea 10 17 05
Model 11 17 18

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Belinea 101705(111718) Service Manual

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Belinea 101705(111718) Service Manual

1. PRECAUTION AND NOTICES

1.1. SAFETY PRECAUTIONS

This monitor is manufactured and tested on a ground principle that a user's safety comes first. However, improper use or installation may cause damage to the monitor as well as to the user. Carefully go over the following WARNINGS before installing and keep this guide handy.

WARNINGS:

- This monitor should be operated only at the correct power sources indicated on the label on the rear end of the monitor. If you're unsure of the power supply in your residence, consult your local dealer or power company.
- Use only the special power adapter that comes with this monitor for power input.
- Do not try to repair the monitor your self as it contains no user-serviceable parts. This monitor should only be repaired by a qualified technician.
- Do not remove the monitor cabinet. There is high-voltage parts inside that may cause electric shock to human bodies, even when the power cord is unplugged.
- Stop using the monitor if the cabinet is damaged. Have it checked by a service technacian.
- Put your monitor only in a clean, dry environment. If it gets wet, unplug the power cable immediately and consult your service technician.
- Always unplug the monitor before cleaning it. Clean the cabinet with a clean, dry cloth. Apply non-ammonia based cleaner onto the cloth, not directly onto the glass screen.
- Keep the monitor away from magnetic objects, motors, TV sets, and transformer.
- Do not place heavy objects on the monitor or power cord.

1.2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety visual inspections and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltages, wattage, etc. Before replacing any of these components read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

1.3. SERVICE NOTES

1. When replacing parts or circuit boards, clamp the lead wires around terminals before soldering.
2. When replacing a high wattage resistor (more than 1W of metal oxide film resistor) in circuit board, keep the resistor about 5mm away from circuit board.
3. Keep wires away from high voltage, high temperature components and sharp edges.
4. Keep wires in their original position so as to reduce interference.
5. Usage of this product please refer to also user's manual.

2. SERVICE TOOL & EQUIPMENT REQUIRED

1. SIGNAL GEN.
2. MULTIMETER
3. OSCILLOSCOPE
4. SCREW DRIVER
5. IRON
6. ABSORBER
7. SOLDER
8. DUMMY LOAD (5ohm/200W)

3. SPECIFICATIONS

3.1. PRODUCT SPECIFICATIONS

LCD Panel	17.0" TFT
Power Management	Energy Star compliant VESA DPMS compatible < 2W
Displayable Resolution	SXGA 1280× 1024 (max.)
Pixel Dimension	0.264(H)× 0.264(V)mm
LCD Display Color	16.2M Color Max. (6bit+2FRC)
Viewing Angle	CR≧10 Horizontal: -70°+70° Vertical: -65°+65°
Tilt	+90°, -5°
Contrast Ratio Brightness	400 : 1 (typ.) / 300 : 1(min.) 260 cd/ m^2 (typ.) 200 cd/m^2 (min.)
Response Time	Tr: 9 ms Tf: 16ms
Active Display Area	339.5mm(H)× 272mm(V)
Temperature	Operating: 0°C ~ +40°C Storage: -20°C ~ +60°C
Compliance	UL 1950, C-UL, EN60950, FCC-B, CE MARK, TÜV/GS, TCO99, CB.
Power	Input Voltage: 100~220 Vac Consumption: 45 Watts (Max.)

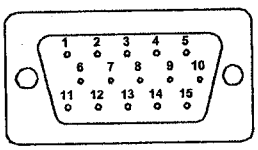
3.2. FACTORY SUPPORTING MODES

There are totally 35 timings mode that can be saved in memory by FIFO architecture.
This monitor can support VGA up to SXGA resolution.
There are some resolution example listed in lookup timing table.

Lookup timing table:
1.VGA 720×400 (70Hz) mode
2.VGA 640×480 (60Hz) mode
3.VESA 640×480 (75Hz) mode
4.VESA 800×600 (56Hz) mode
5.VESA 800×600 (60Hz) mode
6.VESA 800×600 (72Hz) mode
7.VESA 800×600 (75Hz) mode
8.VESA 1024×768 (60Hz) mode
9.VESA 1024×768 (70Hz) mode
10.VESA 1024×768 (75Hz) mode
11.VESA 1280×1024 (60Hz) mode
12.VESA 1280×1024 (75Hz) mode
13.MAC 640×480 (67Hz) mode
14.MAC 832×624 (74.5Hz) mode

3.3. D-SUB CONNECTOR

D-SUB 15 PIN CONNECTOR

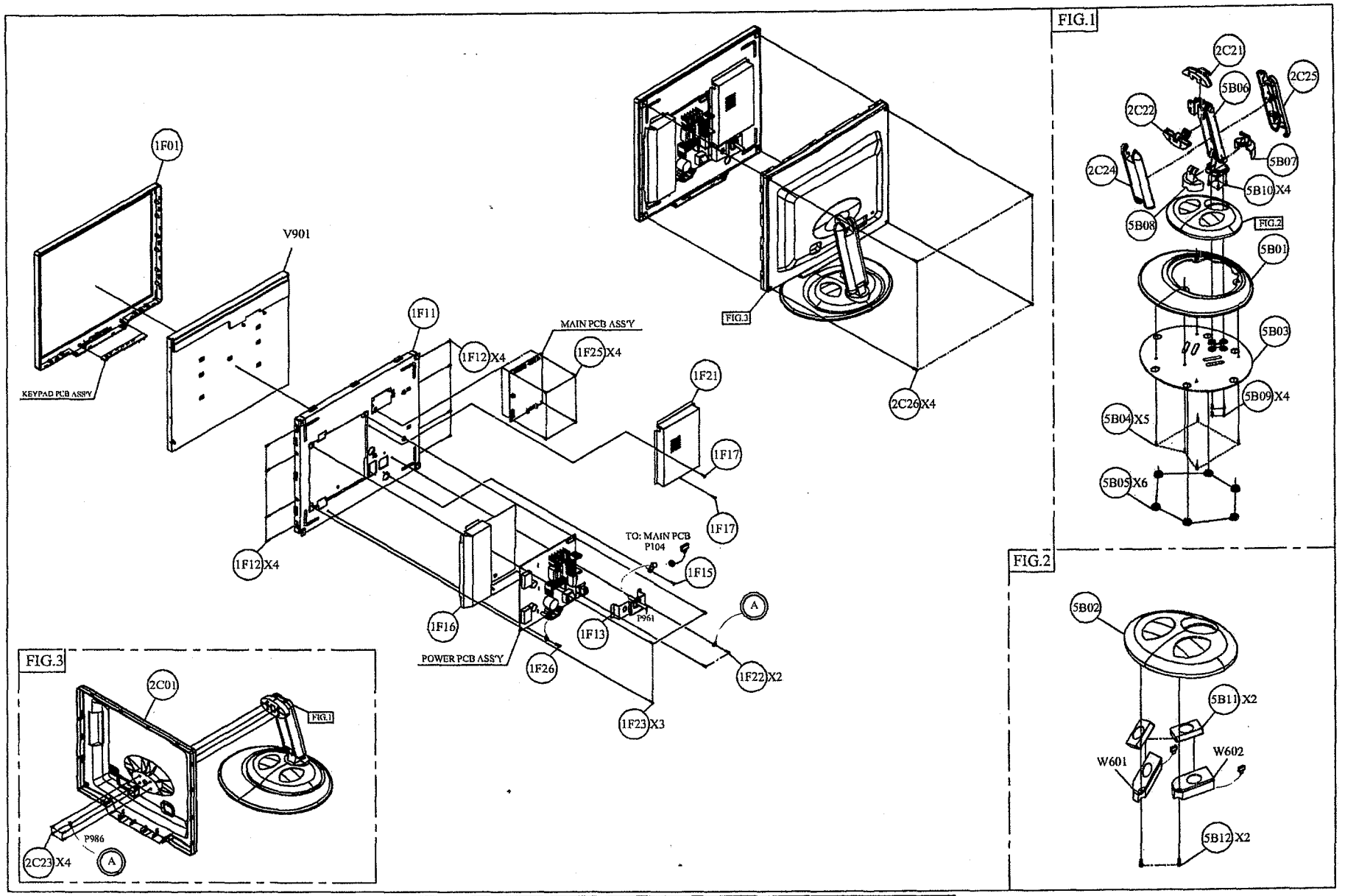


1.R	**6.GND**	**11.GND**
2.G	**7.GND**	**12.SDA**
3.B	**8.GND**	**13.H.SYNC**
4.GND	**9. +5V**	**14.V.SYNC**
5.GND	**10.GND**	**15.SCL**

SIGNAL LEVEL

CONNECTOR	SIGNAL	DESCRIPTION
R	RED	0.7vp-p(VIDEO)
G	GREEN	0.7vp-p(VIDEO)
B	BLUE	0.7vp-p(VIDEO)
H	H/SYNC	TTL positive or negative
V	V/SYNC	TTL positive or negative
SDA	DDC1/2B	TTL
SCL	DDC1/2B	TTL

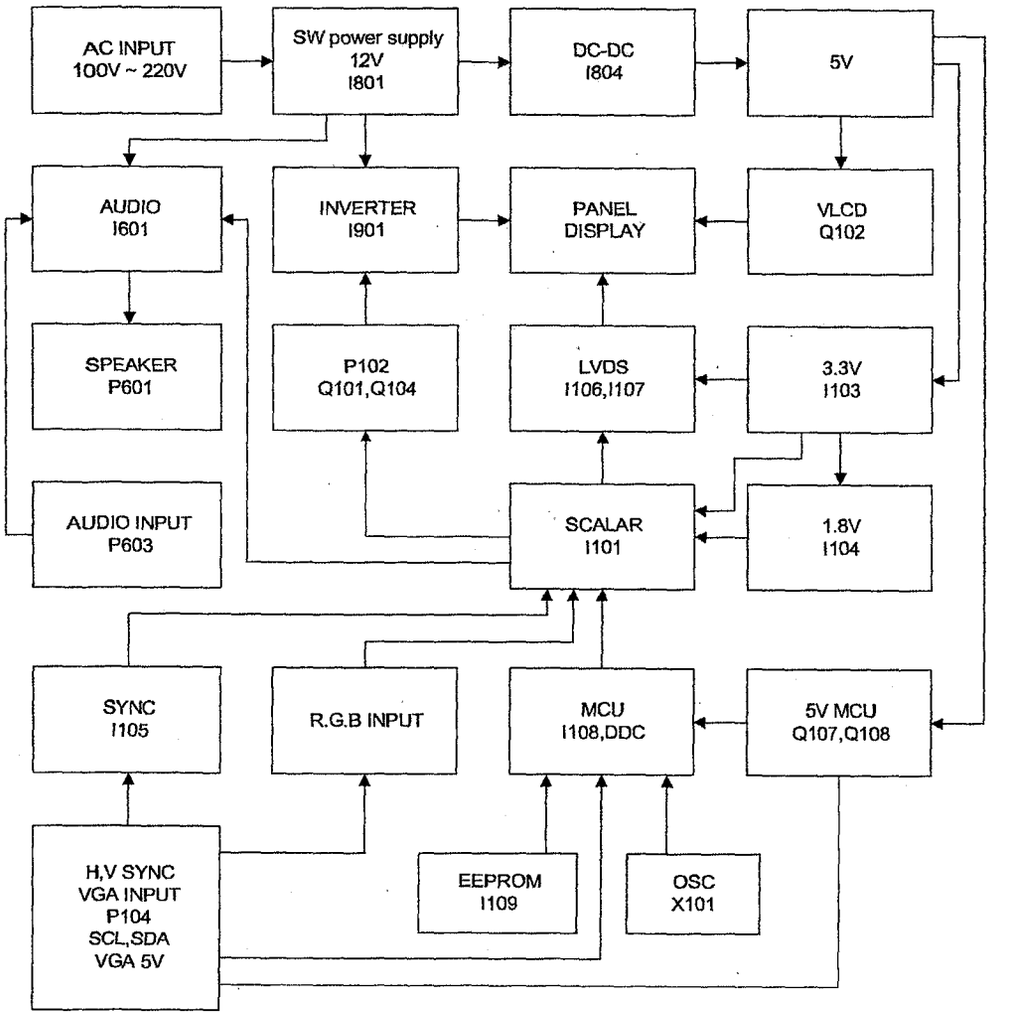
4.1. Exploded View



4.2. EXPLODED VIEW PARTS LIST

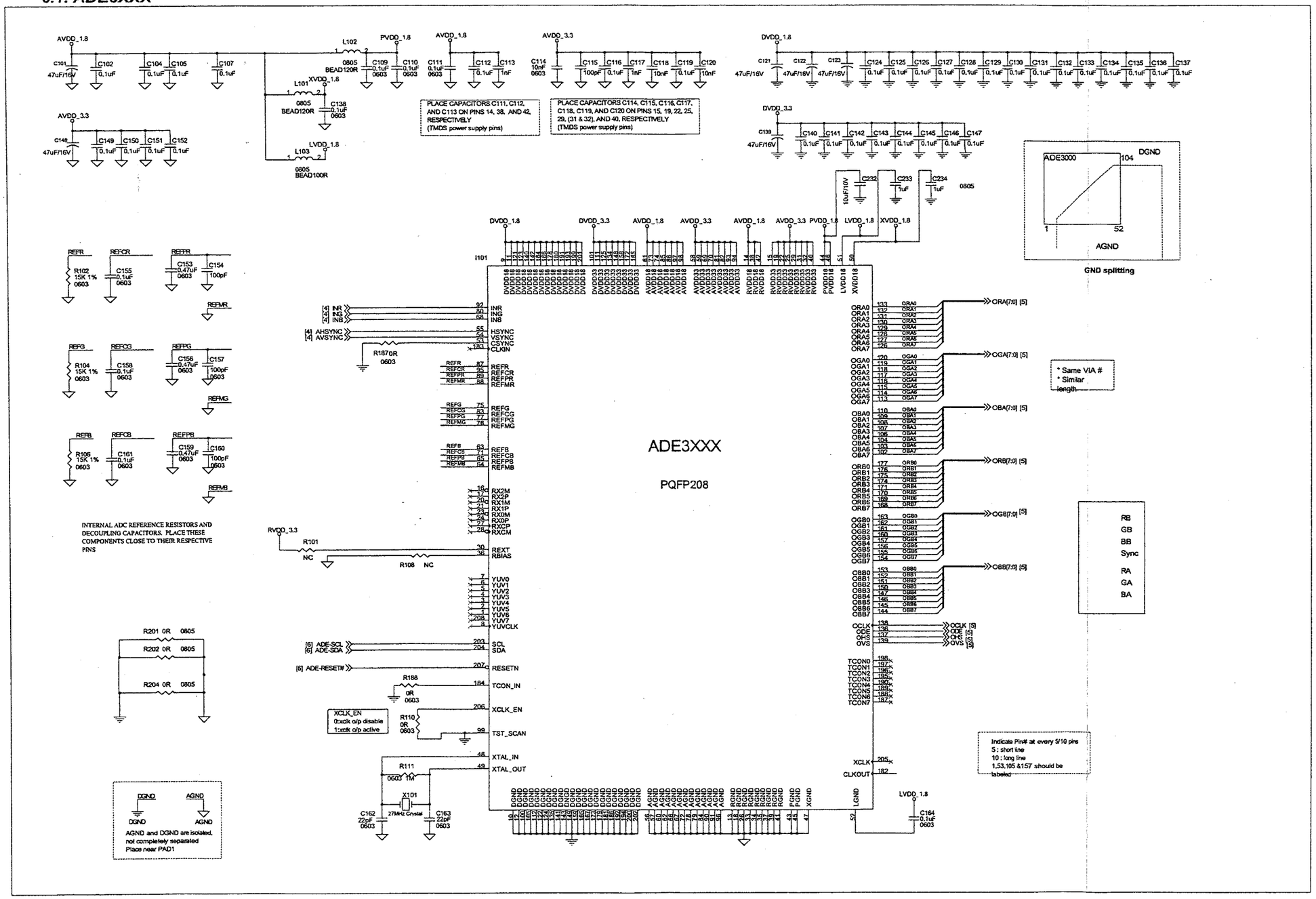
Ref. No.	Source	Part No.	DESCRIPTION	SPECIFICATION	Q'TY	REMARK
1F01		2603307546	BEZEL ASSY	BAYER PC+ABS FR2000 7035	1	
1F11		2071966100	METAL FITTG	JT178K77 SECC T=0.8MM(PANEL)	1	
1F12		2080002200	SCREW,SPE	L355 M3x6 DH NICKEL-PLATED	8	
1F13		2071966200	METAL FITTG	JT178K77 SECC T=1.0MM(I/0)	1	
1F15		2081430082	SCREW,(WASH)	M3X8 P=0.5(TOOTH,WASHER)	1	
1F16		2072455200	INSULATOR	JT178K MYLAR(94V0)263*253*0.5	1	
1F17		2081430082	SCREW,(WASH)	M3X8 P=0.5(TOOTH,WASHER)	2	
1F21		2071666100	SHIELD PLATE	JT178K77 SPTE T=0.3MM(MAIN)	1	
1F22		2082630062	SCREW	M3X6 P=0.5	2	
1F23		2082630062	SCREW	M3X6 P=0.5	3	
1F25		2082630062	SCREW	M3X6 P=0.5	4	
1F26		2085740062	SCREW,B OTW+	B,OTW+,M4x6	1	
2C01		2022260903	CABI BACK	BAYER PC+ABS FR2000 7035	1	
2C21		2027257004	DUST COVER	BAYER PC+ABS FR2000 7035	1	
2C22		2027257104	DUST COVER	BAYER PC+ABS FR2000 7035	1	
2C23		2085740122	SCREW,B OTW+	SCREW B OTW+ M4X12	4	
2C24		2028552503	NECK	BAYER PC+ABS FR2000 7035	1	
2C25		2028552603	NECK	BAYER PC+ABS FR2000 7035	1	
2C26		2082630062	SCREW	M3X6 P=0.5	4	
5B01		2028256503	STAND	BAYER PC+ABS FR2000 7035	1	
5B02		2028256404	STAND	BAYER PC+ABS FR2000 7035	1	
5B03		2071863500	BRACKET,FIX	JT178K77 SECC T=2.0MM	1	
5B04		2083740082	SCREW,BND T+	M4*8(BND T+)	5	
5B05		2039802301	FOOT PAD	CR 420xö16.5x5.8	6	
5B06		2106655300	HINGE	JT178KP TRIPLE PIVOT ROTATE	1	
5B07		2027257204	DUST COVER	BAYER PC+ABS FR2000 7035	1	
5B08		2027257304	DUST COVER	BAYER PC+ABS FR2000 7035	1	
5B09		2087340066	SCREW,B SPW+	SCREW, B SPW+	4	
5B10		2084730082	SCREW,BND T+	M3X8(BND T+)	4	
5B11		2061252400	SPONGE	36X23X3t EVA	2	
5B12		2084730082	SCREW,BND T+	M3X8(BND T+)	2	

5. BLOCK DIAGRAM

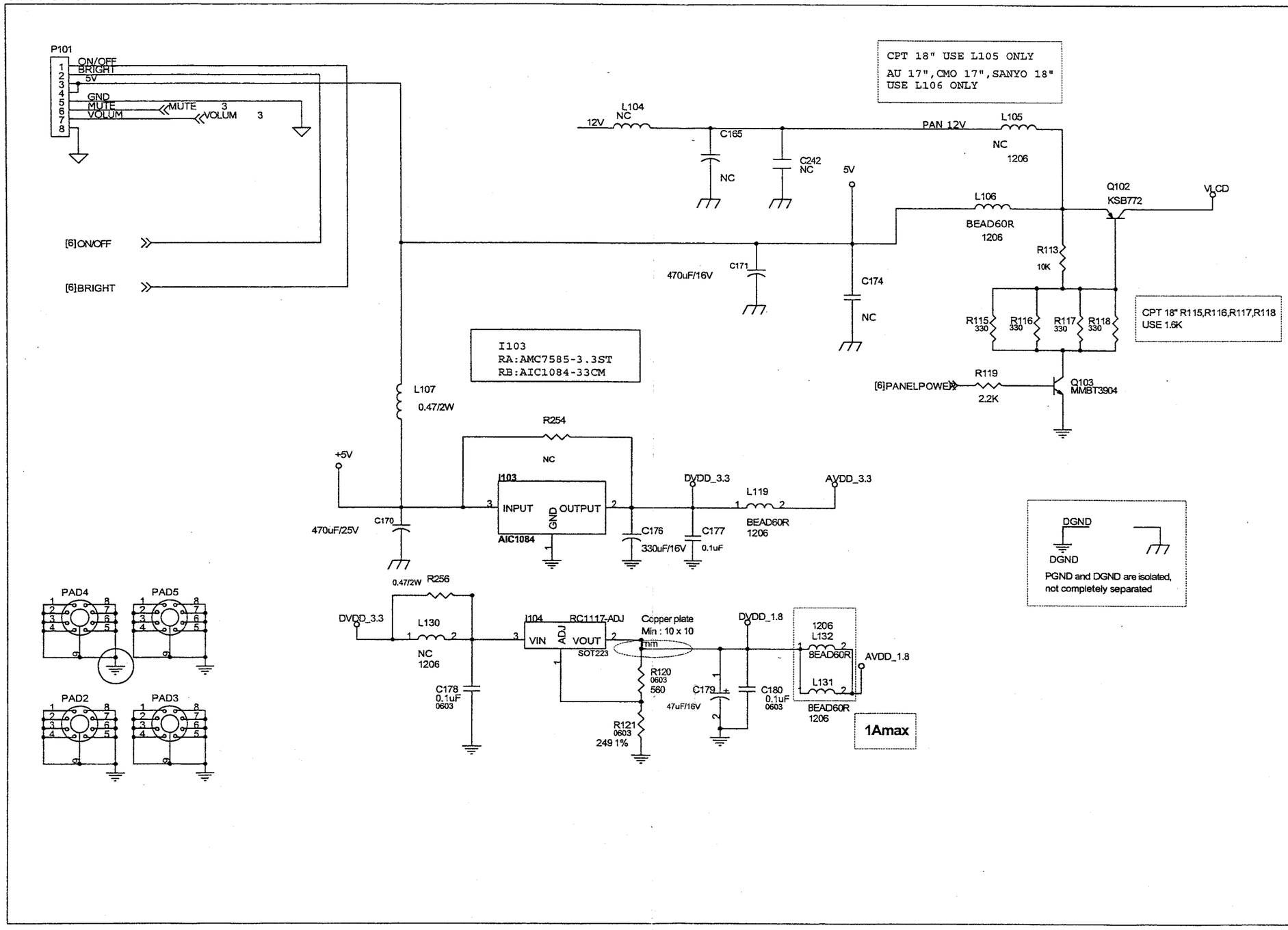


6. Schematic Diagrams

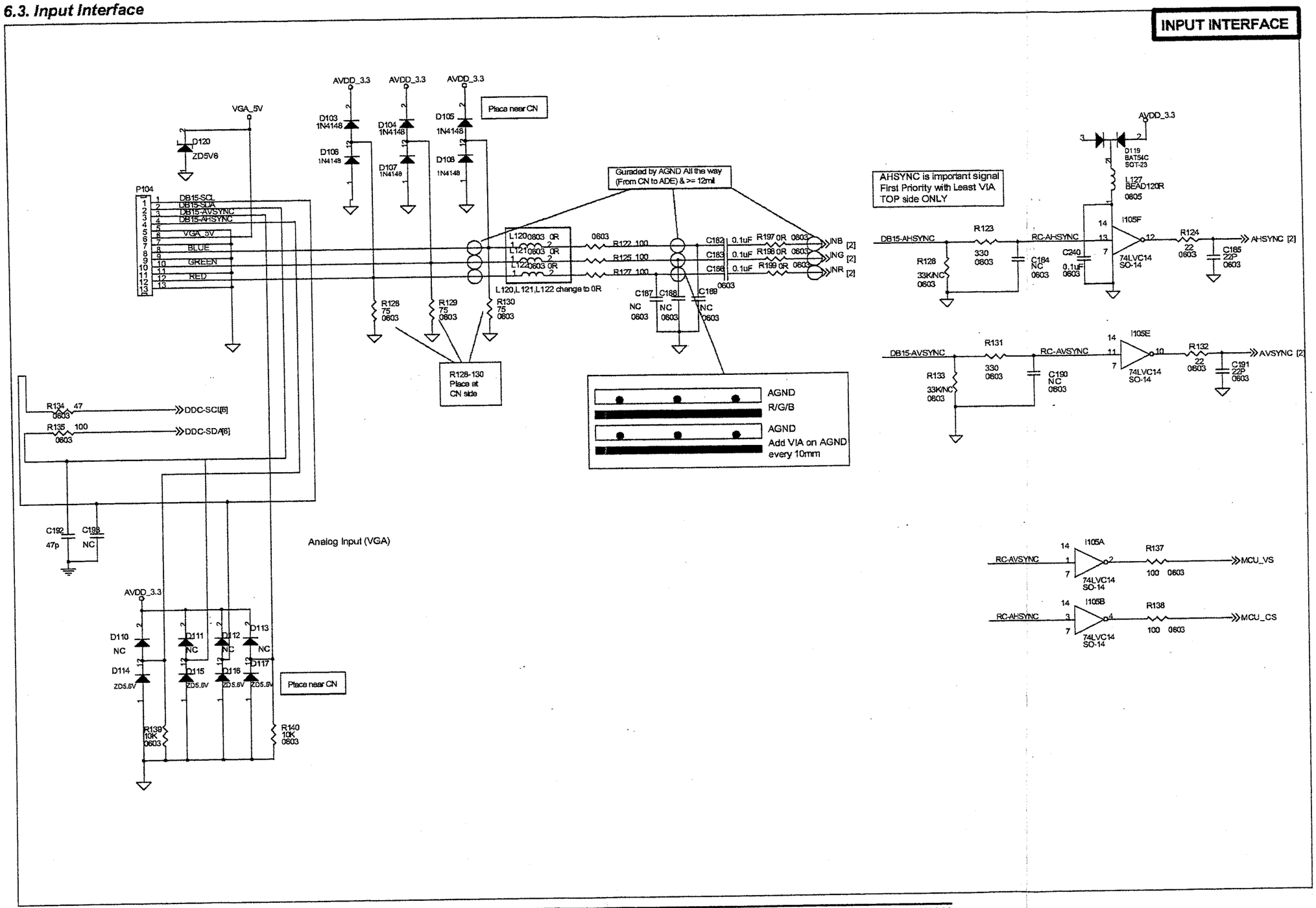
6.1. ADE3XXX


ADE3XXX
PQFP208
PLACE CAPACITORS C111, C112, AND C113 ON PINS 14, 38, AND 42, RESPECTIVELY (TMDS power supply pins)
PLACE CAPACITORS C114, C115, C116, C117, C118, C119, AND C120 ON PINS 15, 19, 22, 25, 29, (31 & 32), AND 40, RESPECTIVELY (TMDS power supply pins)
INTERNAL ADC REFERENCE RESISTORS AND DECOUPLING CAPACITORS. PLACE THESE COMPONENTS CLOSE TO THEIR RESPECTIVE PINS
AGND and DGND are isolated, not completely separated Place near PAD1
GND splitting
* Same VIA #
* Similar length
Indicate Pin# at every 5/10 pins
5 : short line
10 : long line
1,53,105 &157 should be labeled
RB
GB
BB
Sync
RA
GA
BA

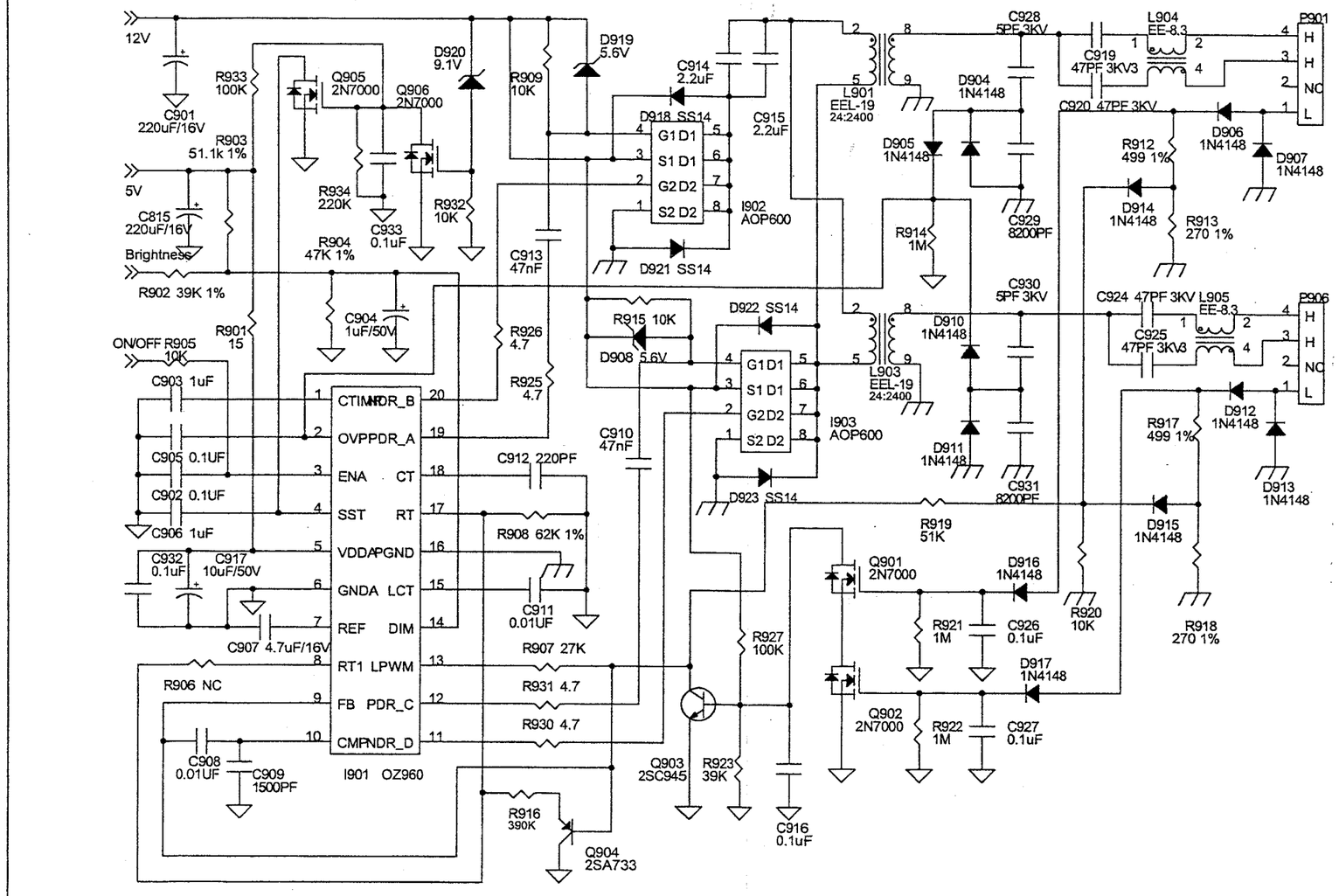
6.2. Power


P101
1 ON/OFF
2 BRIGHT
3 5V
4 GND
5 MUTE
6 VOLUM
7
8
MUTE 3
VOLUM 3
[6]ON/OFF
[6]BRIGHT
CPT 18" USE L105 ONLY
AU 17",CMO 17",SANYO 18"
USE L106 ONLY
L104
NC
12V
C165
NC
C242
NC
5V
PAN 12V
L105
NC
1206
L106
BEAD60R
1206
Q102
KSB772
VLCD
R113
10K
C171
470uF/16V
C174
NC
R115 330
R116 330
R117 330
R118 330
CPT 18" R115,R116,R117,R118
USE 1.6K
R119
2.2K
[6]PANELPOWER
Q103
MMBT3904
I103
RA:AMC7585-3.3ST
RB:AIC1084-33CM
L107
0.47/2W
R254
NC
+5V
I103
INPUT
GND
OUTPUT
AIC1084
C170
470uF/25V
C176
330uF/16V
C177
0.1uF
DVDD_3.3
AVDD_3.3
L119
BEAD60R
1206
DGND
DGND
PGND and DGND are isolated,
not completely separated
PAD4
PAD5
PAD2
PAD3
0.47/2W R256
DVDD_3.3
L130
NC
1206
I104
RC1117-ADJ
VIN
ADJ
VOUT
SOT223
Copper plate
Min : 10 x 10
mm
DVDD_1.8
1206
L132
BEAD60R
L131
BEAD60R
1206
AVDD_1.8
C178
0.1uF
0603
R120
0603
560
R121
0603
249 1%
C179
47uF/16V
C180
0.1uF
0603
1Amax

6.3. Input Interface



6.8. INVERTER


12V
C901 220uF/16V
R933 100K
Q905 2N7000
Q906 2N7000
D920 9.1V
R909 10K
D919 5.6V
C914 2.2uF
D918 SS14
C915 2.2uF
L901 EEL-19 24:2400
C928 5PF 3KV
D904 1N4148
C919 47PF 3KV3
L904 EE-8.3
P901
C920 47PF 3KV
D906 1N4148
D907 1N4148
R912 499 1%
D914 1N4148
R913 270 1%
R903 51.1k 1%
5V
C815 220uF/16V
Brightness
R934 220K
C933 0.1uF
R904 47K 1%
R932 10K
C913 47nF
I902 AOP600
D921 SS14
D905 1N4148
R914 1M
C929 8200PF
R902 39K 1%
C904 1uF/50V
R901 15
ON/OFF R905 10K
C903 1uF
R926 4.7
R925 4.7
R915 10K
D908 5.6V
D922 SS14
C910 47nF
I903 AOP600
L903 EEL-19 24:2400
C930 5PF 3KV
D910 1N4148
C924 47PF 3KV
L905 EE-8.3
P906
C925 47PF 3KV3
D912 1N4148
D913 1N4148
R917 499 1%
D911 1N4148
C931 8200PF
D923 SS14
R919 51K
D915 1N4148
R918 270 1%
C905 0.1UF
C902 0.1UF
C906 1uF
C912 220PF
R908 62K 1%
C932 0.1uF
C917 10uF/50V
C907 4.7uF/16V
C911 0.01UF
R907 27K
R931 4.7
R930 4.7
R906 NC
C908 0.01UF
C909 1500PF
I901 OZ960
R916 390K
Q904 2SA733
Q903 2SC945
R923 39K
C916 0.1uF
R927 100K
Q901 2N7000
D916 1N4148
R921 1M
C926 0.1uF
R920 10K
D917 1N4148
Q902 2N7000
R922 1M
C927 0.1uF
CTIMPDR_B
OVPPDR_A
ENA CT
SST RT
VDDAPGND
GNDA LCT
REF DIM
RT1 LPWM
FB PDR_C
CMPPDR_D

7. WORKING THEOREM

A. DC-DC CONVERTER

This brick convert is the 12V input voltage to 5V output for panel use and system controller use . It consists of a PWM IC (L4973 I804), flywheel diode (D812 SR560), buck choke (L812) and capacitor C826.
I804 (L4973) is a PWM generator working at 200KHz.
5V Out put at 2,3 pin
VCC 12V In put at 8 pin

B. Scaling controller

The ADC is to convert RGB analog signal to digital signal that scaling chip can acknowledge.
The HSYNC input receives a logic signal and provides the frequency reference for pixel clock generation.
The scaling IC is to converts the input signal ranging from VGA to SXGA into SXGA resolution that panel can acknowledge.
The scaling IC is to converts the input signal ranging from VGA to SXGA into SXGA resolution that panel can acknowledge.
When power is first applied, the ADE3XXX is asynchronously reset from a pin. The uC typically programs the ADE3XXX with a number of default values and sets up the ADE3XXX to identify activity on any of the input pins. All preconfigured values and RAMs, such as DVI settings, line-lock PLL settings, video input modes (YUV), OSD characters, LCD timing values (output sequencer), scale kernels, gamma curves, sRGB color warp, APC dithering, output pin configuration (OMUX), etc. can be preloaded into the ADE3XXX.
The typical end state is that the ADE3XXX is initialized into a low power mode, ready to turn active once the power button is pressed. activity detect When the monitor has been powered on, the inputs can be monitored for active video sources. Based on the activity monitors, the uC chooses an input or power down state.
SMEAS 40 sync / timing measurement
Once an input source is selected, all available information on frequencies and line/pixel counts is measured for the selected source and made available to the uC.
SMEAS 40 mode set
Once the uC has determined the matching video mode or calculated a video mode using a GTF algorithm, the datapath is programmed to drive the flat panel. Clock frequencies for the internal memory and datapath are also set at this time. autotune When the uC calls for an autotune, the uC sets up an iterative loop to search for the best phase, gain, offset, etc. At each step of the loop, the uC kicks off a test in which the ADE3XXX which performs extensive statistical analysis of the incoming data stream. The results of the analysis are made available to the uC which is responsible for the optimization algorithmSRT digital contrast / brightness In response to user OSD control, the uC can program single 8b registers that set brightness and contrast for each color channel independently.
SRGB 80 white point control
In response to user OSD control, the uC can program three 8b registers that set the white point for the output.
SRGB 80 gamma adjustment
The uC can program the gamma RAMs to implement 10b accurate color transformations.
GAMMA 92 sRGB control
The SRGB block allows simple, intuitive color control with just a few registers.
SRGB 80 pattern generation
For production testing, the ADE3XXX can be programmed by the uC to output a wide set of test patterns.
PGEN 74 flicker reduction
For smart panel applications, the uC can set up the flicker detection block to report any correlation with the polarity inversion signal. The uC can then change the polarity inversion to a non-correlating pattern to eliminate flicker.
HDCP The ADE3XXX contains the BlockCipher and Decryption functions - interactions over

DDC are managed by the uC for maximum flexibility. The uC models the slow (frame rate, e.g. 60Hz) authentication handshaking and state machine whereas the ADE3XXX handles the fast (line rate, e.g. 50kHz) decryption state machine.
HDCP 34 backlight control
The ADE3XXX provides two PWM outputs for direct control of the power components in a typical backlight.
The uC sets up the registers and enables the function.
PWM 97

Table 1: Pin Description

Pin #	Name	Type	Description
1	YUV6	Input	TV Video input port: Data 6
2	YUV5	Input	TV Video input port: Data 5
3	YUV4	Input	TV Video input port: Data 4
4	YUV3	Input	TV Video input port: Data 3
5	YUV2	Input	TV Video input port: Data 2
6	YUV1	Input	TV Video input port: Data 1
7	YUV0	Input	TV Video input port: Data 0
8	YUVCLK	Input	TV Video input port: Clock
9	DVDD18	Power	Digital 1.8V VDD
10	DGND	Power	Digital Ground
11	DVDD18	Power	Digital 1.8V VDD
12	DGND	Power	Digital Ground
13	AGND	Power	Analog Ground
14	AVDD18	Power	Analog 1.8V VDD
15	AVDD33	Power	Analog 3.3V VDD
16	RX2M	Input	DVI Receiver Channel 2 MINUS input (RED)
17	RX2P	Input	DVI Receiver Channel 2 PLUS input (RED)
18	AGND	Power	Analog Ground
19	AVDD33	Power	Analog 3.3V VDD
20	RX1M	Input	DVI Receiver Channel 1 MINUS input (GREEN)
21	RX1P	Input	DVI Receiver Channel 1 PLUS input (GREEN)
22	AVDD33	Power	Analog 3.3V VDD
23	RX0M	Input	DVI Receiver Channel 0 MINUS input (BLUE)
24	RX0P	Input	DVI Receiver Channel 0 PLUS input (BLUE)
25	AVDD33	Power	Analog 3.3V VDD
26	AGND	Power	Analog Ground
27	RXCP	Input	DVI Receiver Clock Channel PLUS input
28	RXCM	Input	DVI Receiver Clock Channel MINUS input
29	AVDD33	Power	Analog 3.3V VDD
30	REXT	Passive	1% 475 Ohm resistor to Analog 3.3V VDD
31	AVDD33	Power	Analog 3.3V VDD
32	AVDD33	Power	Analog 3.3V VDD
33	AGND	Power	Analog Ground
34	AGND	Power	Analog Ground
35	AGND	Power	Analog Ground
36	RBIAS	Passive	1% 2.0 kOhm resistor to Analog Ground
37	AGND	Power	Analog Ground
38	AVDD18	Power	Analog 1.8V VDD
39	AGND	Power	Analog Ground
40	AVDD33	Power	Analog 3.3V VDD
41	AGND	Power	Analog Ground
42	AVDD18	Power	Analog 1.8V VDD
43	AGND	Power	Analog Ground
44	AVDD18	Power	Analog 1.8V VDD
45	AGND	Power	Analog Ground
46	AVDD18	Power	Analog 1.8V VDD
47	XGND	Power	Crystal Oscillator Ground

48 XTAL_IN Input Crystal Oscillator input
49 XTAL_OUT Output Crystal Oscillator output
50 XVDD18 Power Crystal Oscillator 1.8V VDD
51 LVDD18 Power Line Lock PLL 1.8V VDD
52 LGND Power Line Lock PLL Ground
53 CSYNC Input Composite Sync Input - for Sync On Green
54 VSYNC Input Vertical Sync Input
55 HSYNC Input Horizontal (or Composite) Sync Input
56 AGND Power Analog Ground
57 AGND Power Analog Ground
58 AVDD33 Power Analog 3.3V VDD
59 AVDD33 Power Analog 3.3V VDD
60 AGND Power Analog Ground
61 AVDD18 Power Analog 1.8V VDD
62 AGND Power Analog Ground
63 REFB Passive 1% 15.0 kOhm resistor to Analog Ground
64 REFMB Passive connect to Analog Ground
65 REFPB Passive 470nF capacitor to Analog Ground
66 AGND Power Analog Ground
67 AGND Power Analog Ground
68 INB Input Analog Video Port: Blue Channel input
69 AVDD33 Power Analog 3.3V VDD
70 AVDD33 Power Analog 3.3V VDD
71 REFCB Passive 100nF capacitor to Analog Ground
72 AGND Power Analog Ground
73 AVDD18 Power Analog 1.8V VDD
74 AVDD18 Power Analog 1.8V VDD
75 REFG Passive 1% 15.0 kOhm resistor to Analog Ground
76 REFMG Passive connect to Analog Ground
77 REFPG Passive 470nF capacitor to Analog Ground
78 AGND Power Analog Ground
79 AGND Power Analog Ground
80 ING Input Analog Video Port: Green Channel input
81 AVDD33 Power Analog 3.3V VDD
82 AVDD33 Power Analog 3.3V VDD
83 REFCG Passive 100nF capacitor to Analog Ground
84 AGND Power Analog Ground
85 AVDD18 Power Analog 1.8V VDD
86 AVDD18 Power Analog 1.8V VDD
87 REFR Passive 1% 15.0 kOhm resistor to Analog Ground
88 REFMR Passive connect to Analog Ground
89 REFPR Passive 470nF capacitor to Analog Ground
90 AGND Power Analog Ground
91 AGND Power Analog Ground
92 INR Input Analog Video Port: Red Channel input
93 AVDD33 Power Analog 3.3V VDD
94 AVDD33 Power Analog 3.3V VDD
95 REFCR Passive 100nF capacitor to Analog Ground
96 AGND Power Analog Ground
97 AVDD18 Power Analog 1.8V VDD
98 AVDD18 Power Analog 1.8V VDD
99 TST_SCAN Input connect to Digital Ground
100 DGND Power Digital Ground
101 DVDD33 Power Digital 3.3V VDD
102 OBA7 Output Output Port A: Blue Data 7
103 OBA6 Output Output Port A: Blue Data 6
104 OBA5 Output Output Port A: Blue Data 5

105 DGND Power Digital Ground
106 OBA4 Output Output Port A: Blue Data 4
107 OBA3 Output Output Port A: Blue Data 3
108 OBA2 Output Output Port A: Blue Data 2
109 OBA1 Output Output Port A: Blue Data 1
110 OBA0 Output Output Port A: Blue Data 0
111 DVDD33 Power Digital 3.3V VDD
112 DGND Power Digital Ground
113 OGA7 Output Output Port A: Green Data 7
114 OGA6 Output Output Port A: Green Data 6
115 OGA5 Output Output Port A: Green Data 5
116 OGA4 Output Output Port A: Green Data 4
117 OGA3 Output Output Port A: Green Data 3
118 OGA2 Output Output Port A: Green Data 2
119 OGA1 Output Output Port A: Green Data 1
120 OGA0 Output Output Port A: Green Data 0
121 DVDD18 Power Digital 1.8V VDD
122 DGND Power Digital Ground
123 DVDD18 Power Digital 1.8V VDD
124 DGND Power Digital Ground
125 DVDD33 Power Digital 3.3V VDD
126 ORA7 Output Output Port A: Red Data 7
127 ORA6 Output Output Port A: Red Data 6
128 ORA5 Output Output Port A: Red Data 5
129 ORA4 Output Output Port A: Red Data 4
130 ORA3 Output Output Port A: Red Data 3
131 ORA2 Output Output Port A: Red Data 2
132 ORA1 Output Output Port A: Red Data 1
133 ORA0 Output Output Port A: Red Data 0
134 DVDD33 Power Digital 3.3V VDD
135 DGND Power Digital Ground
136 ODE Output Output Data Enable
137 OHS Output Output Horizontal Sync
138 OCLK Output Output Clock
139 OVS Output Output Vertical Sync
140 DVDD18 Power Digital 1.8V VDD
141 DGND Power Digital Ground
142 DVDD18 Power Digital 1.8V VDD
143 DGND Power Digital Ground
144 OBB7 Output Output Port B: Blue Data 7
145 OBB6 Output Output Port B: Blue Data 6
146 OBB5 Output Output Port B: Blue Data 5
147 OBB4 Output Output Port B: Blue Data 4
148 DVDD33 Power Digital 3.3V VDD
149 DGND Power Digital Ground
150 OBB3 Output Output Port B: Blue Data 3
151 OBB2 Output Output Port B: Blue Data 2
152 OBB1 Output Output Port B: Blue Data 1
153 OBB0 Output Output Port B: Blue Data 0
154 OGB7 Output Output Port B: Green Data 7
155 OGB6 Output Output Port B: Green Data 6
156 OGB5 Output Output Port B: Green Data 5
157 OGB4 Output Output Port B: Green Data 4
158 DVDD33 Power Digital 3.3V VDD
159 DGND Power Digital Ground
160 OGB3 Output Output Port B: Green Data 3
161 OGB2 Output Output Port B: Green Data 2

162 OGB1 Output Output Port B: Green Data 1
163 OGB0 Output Output Port B: Green Data 0
164 DVDD18 Power Digital 1.8V VDD
165 DGND Power Digital Ground
166 DVDD18 Power Digital 1.8V VDD
167 DGND Power Digital Ground
168 ORB7 Output Output Port B: Red Data 7
169 ORB6 Output Output Port B: Red Data 6
170 ORB5 Output Output Port B: Red Data 5
171 ORB4 Output Output Port B: Red Data 4
172 DVDD33 Power Digital 3.3V VDD
173 DGND Power Digital Ground
174 ORB3 Output Output Port B: Red Data 3
175 ORB2 Output Output Port B: Red Data 2
176 ORB1 Output Output Port B: Red Data 1
177 ORB0 Output Output Port B: Red Data 0
178 DVDD18 Power Digital 1.8V VDD
179 DGND Power Digital Ground
180 DVDD18 Power Digital 1.8V VDD
181 DGND Power Digital Ground
182 CLKOUT Output not to be connected - reserved
183 CLKIN Input to be connected to Digital Ground - reserved
185 DVDD33 Power Digital 3.3V VDD
186 DGND Power Digital Ground
191 DVDD18 Power Digital 1.8V VDD
192 DGND Power Digital Ground
193 DVDD18 Power Digital 1.8V VDD
194 DGND Power Digital Ground
199 DVDD18 Power Digital 1.8V VDD
200 DGND Power Digital Ground
201 DVDD18 Power Digital 1.8V VDD
202 DGND Power Digital Ground
203 SCL Input I2C Clock
204 SDA Open Drai
205 XCLK Output Crystal clock buffered output
206 XCLK_EN Input Crystal clock output enable
0 : xclk output disabled
1 : xclk output active
207 RESETN Input Reset input, Active Low

MTV312M64

The MTV312M micro-controller is an 8051 CPU core embedded device especially tailored for CRT/LCD Monitor applications. It includes an 8051 CPU core, 1024-byte SRAM, 14 built-in PWM DACs, VESA DDC interface, 4-channel A/D converter, and a 64K-byte internal program Flash-ROM.

A "CMOS output pin" means it can sink and drive at least 4mA current. It is not recommended to use such pin as input function.

A "open drain pin" means it can sink at least 4mA current but only drive 10~20uA to VDD. It can be used as input or output function and needs an external pull up resistor.

A "8051 standard pin" is a pseudo open drain pin. It can sink at least 4mA current when output is at low level, and drives at least 4mA current for 160nS when output transits from low to high, then keeps driving at 100uA to maintain the pin at high level. It can be used as input or output function. It needs an external pull up resistor when driving heavy load device.

POWER CONFIGURATION

The MTV312M can work on 5V or 3.3V power supply system.

In 5V power system, the VDD pin is connected to 5V power and the VDD3 needs an external capacitor, all output pins can swing from 0~5V, input pins can accept 0~5V input range.

And ADC conversion range is 5V. However, X1 and X2 pins must be kept below 3.3V.
In 3.3V power system, the VDD and VDD3 are connected to 3.3V power, all output pins swing from 0~3.3V, HSYNC, VSYNC and open drain pin can accept 0~5V input range, other pins must be kept below 3.3V. And the ADC conversion range is 3.3V.

C. INVERTER

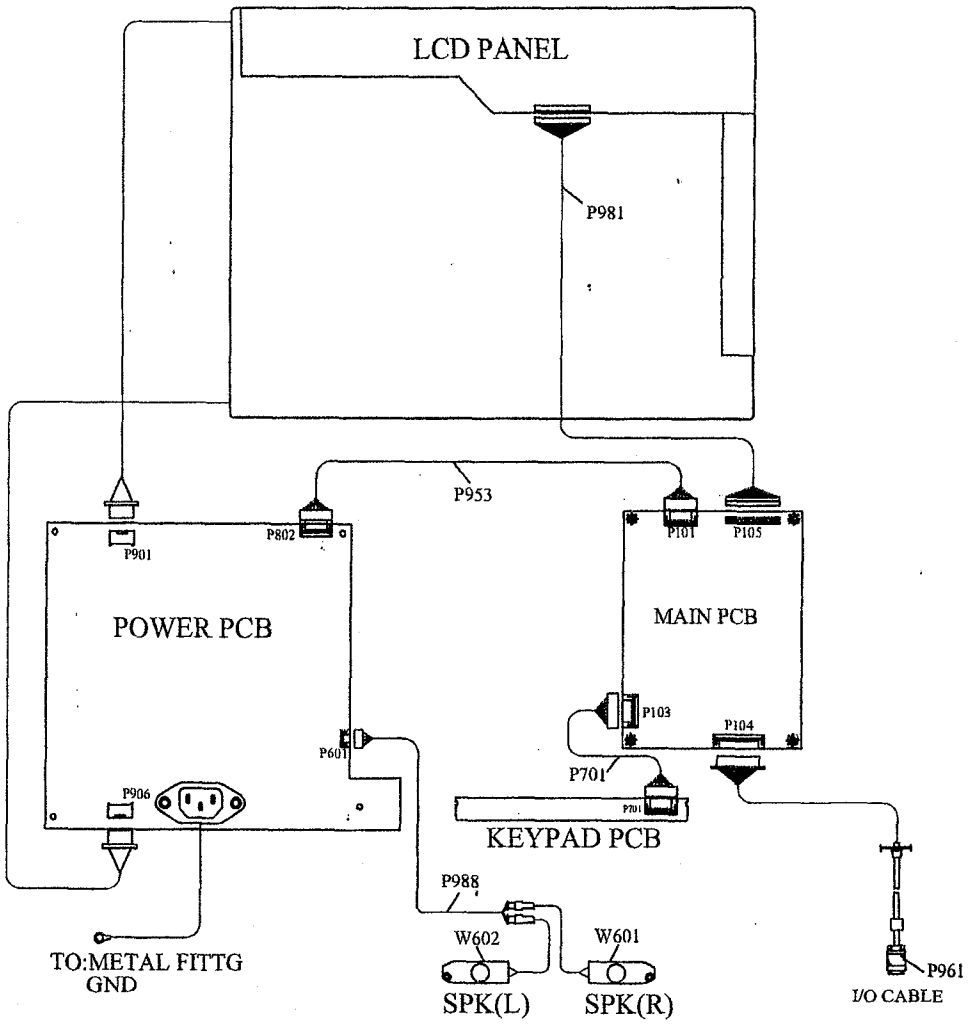
In order to drive the CCFLs embedded in the panel module, there is a half bridge inverter to convert by the controller.
The input 12V up to hundreds of AC voltage output.
The inverter is formed by symmetric in order to drive the separate lamp modules.
The input stage consists of a PWM controller, half bridge inverter, and switching MOSFET to convert DC input into AC output.
The output stage consists of a tuning capacitor, coupling capacitor, transformer, push-pull MOSFET pair to boost AC output up to hundreds of voltage.
And one resister is serial to lamp for output voltage feedback.
There are two signal to control the inverter which come from system.
Logic "high" level which send to I901 is turn on the inverter.
BRI signal control brightness by DC level which was integral from PWM signal.

D. 1W AUDIO AMPLIFIER

The TDA7496L is a stereo 2W+2W class AB power amplifier assembled in the @ Powerdip 14+3+3 package, specially designed for high quality sound, TV and Monitor applications.
Features of the TDA7496L include linear volume control, Stand-by and mute functions.

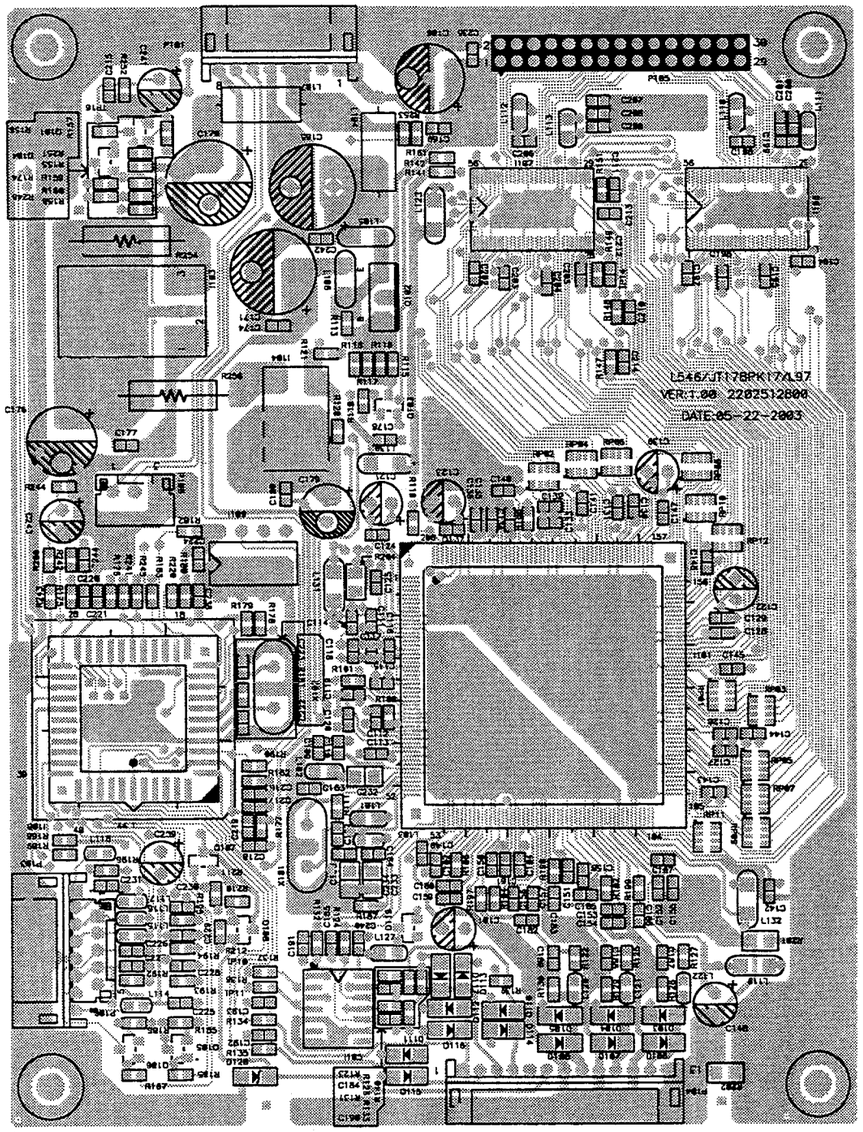
$V_{ST\ ON}$ Stand-by ON Threshold 3.5 V
$V_{ST\ OFF}$ Stand-by OFF Threshold 1.5 V
$V_{M\ ON}$ Mute ON Threshold 3.5 V
$V_{M\ OFF}$ Mute OFF Threshold 1.5 V
$I_{qST\text{-}BY}$ Quiescent Current @ Stand-by 0.6 1 mA
A_{MUTE} Mute Attenuation 50 65 dB
$I_{stbyBIAS}$ Stand-by bias current Stand by on $V_{ST\text{-}BY}$ = 5V
V_{MUTE} = 5V

8. WIRING DIAGRAM

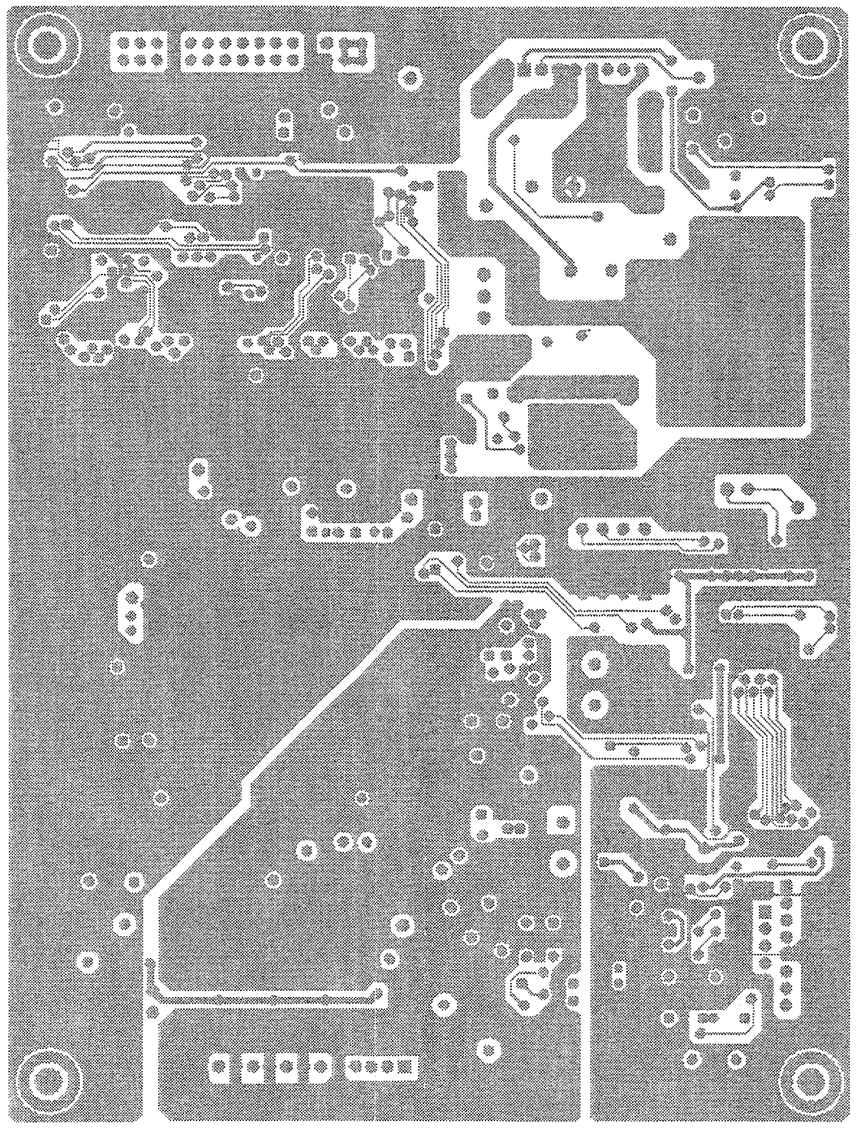


9. PCB Layout

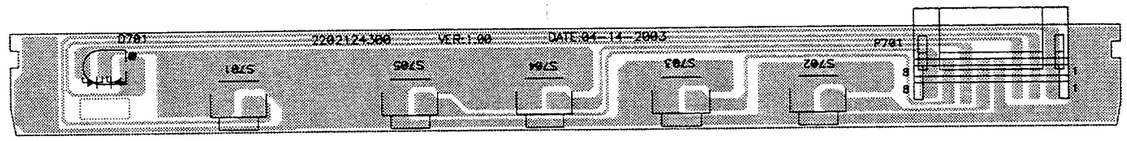
9.1. MAIN PCB TOP VIEW

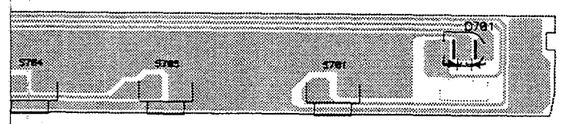


9.2. MAIN PCB BOTTOM VIEW

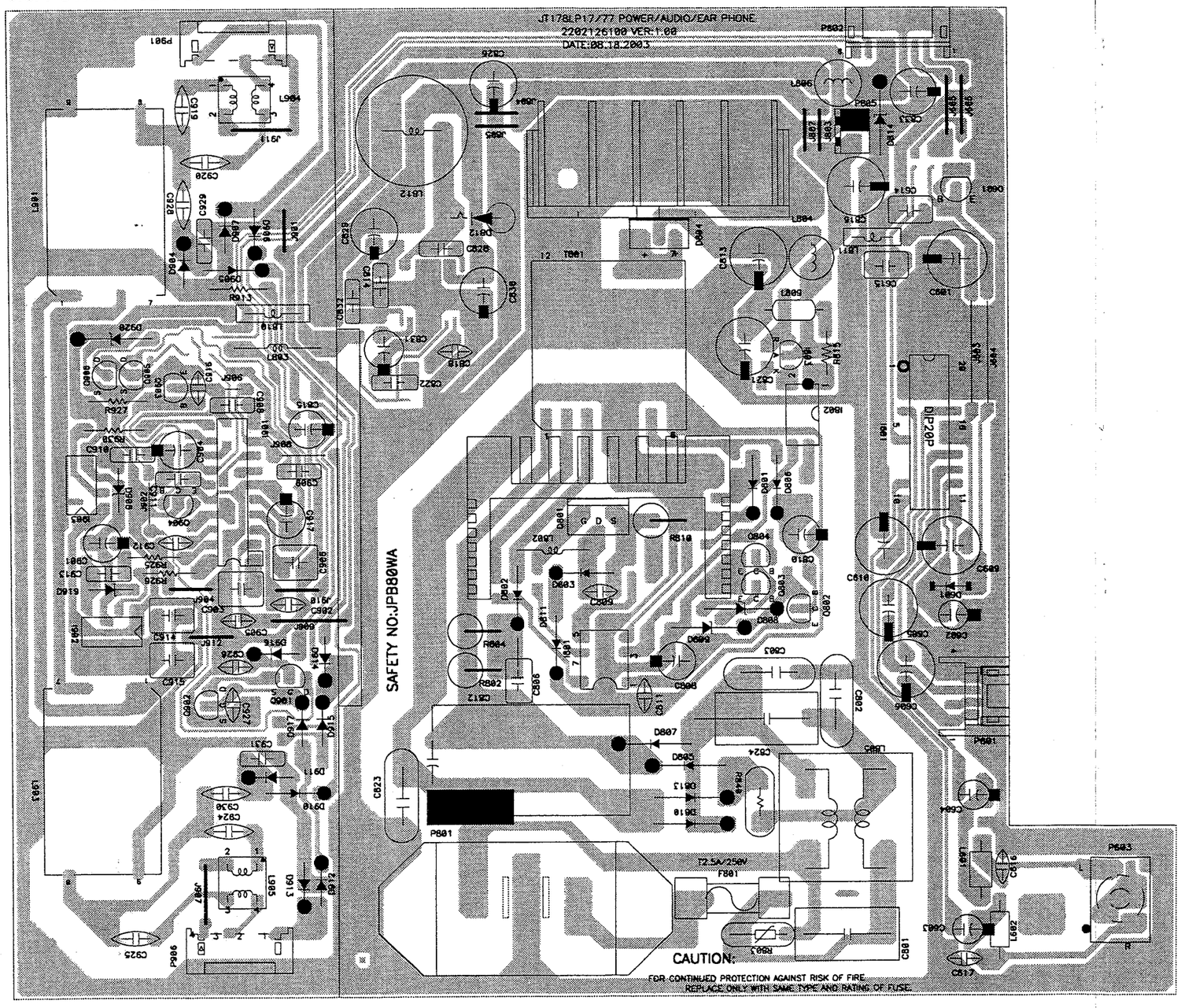


9.3. CON PCB TOP VIEW

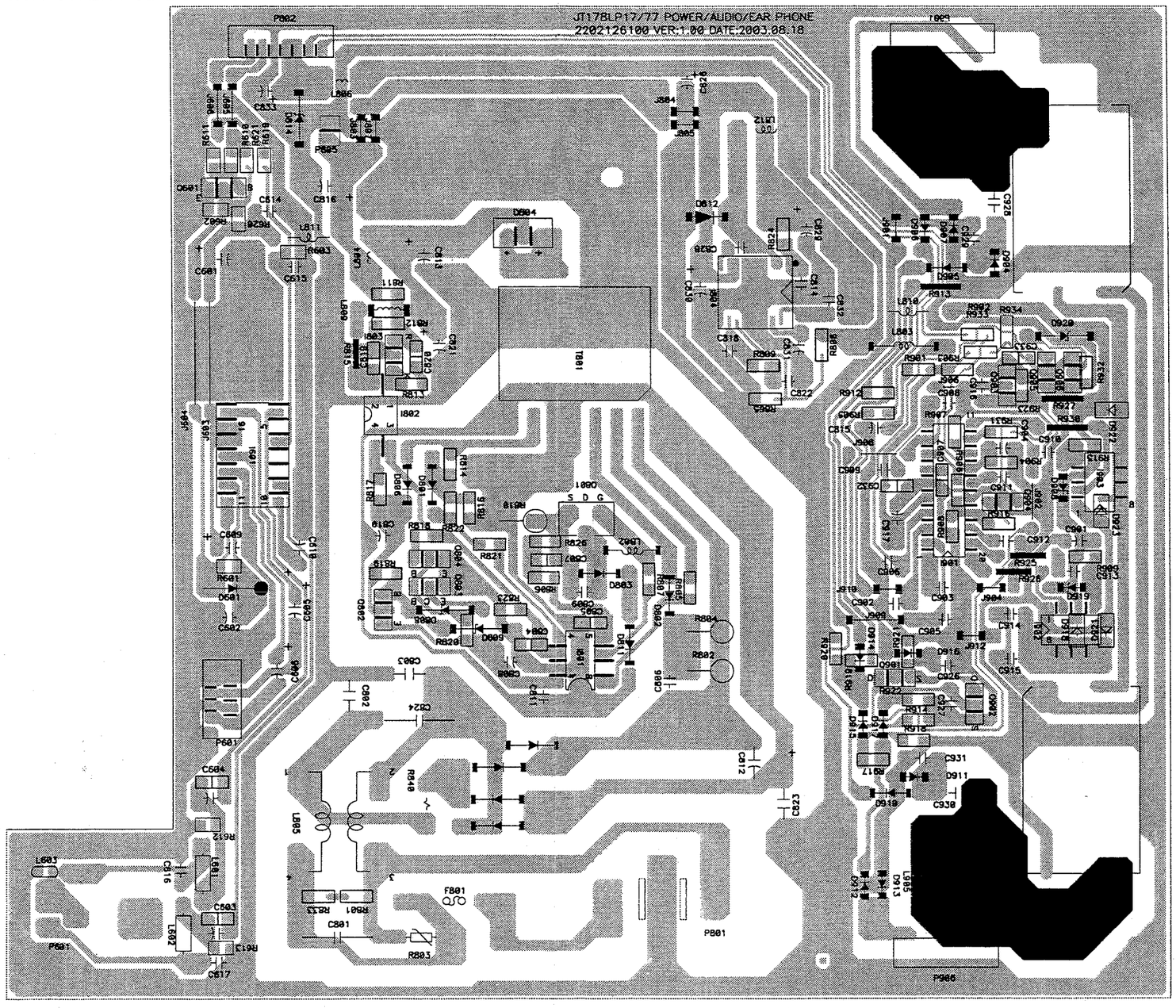



S701
S704
S705
S707

9.5. POWER PCB TOP VIEW

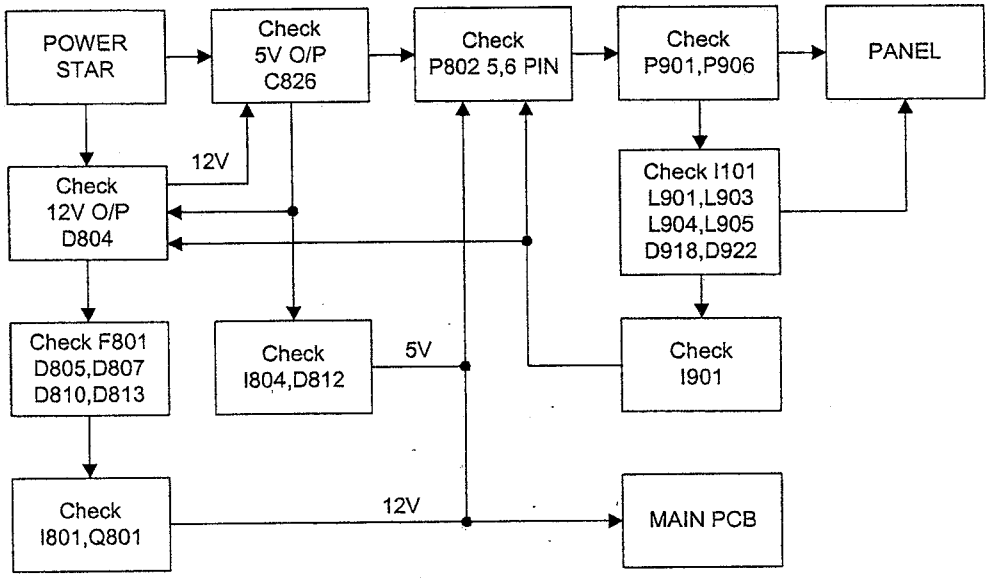


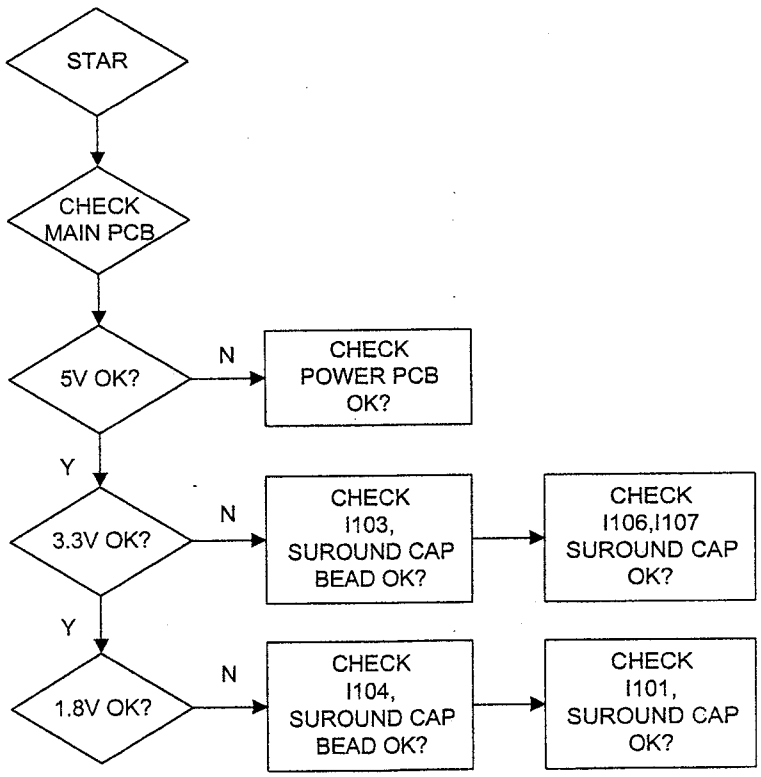
9.6. POWER PCB BOTTOM VIEW



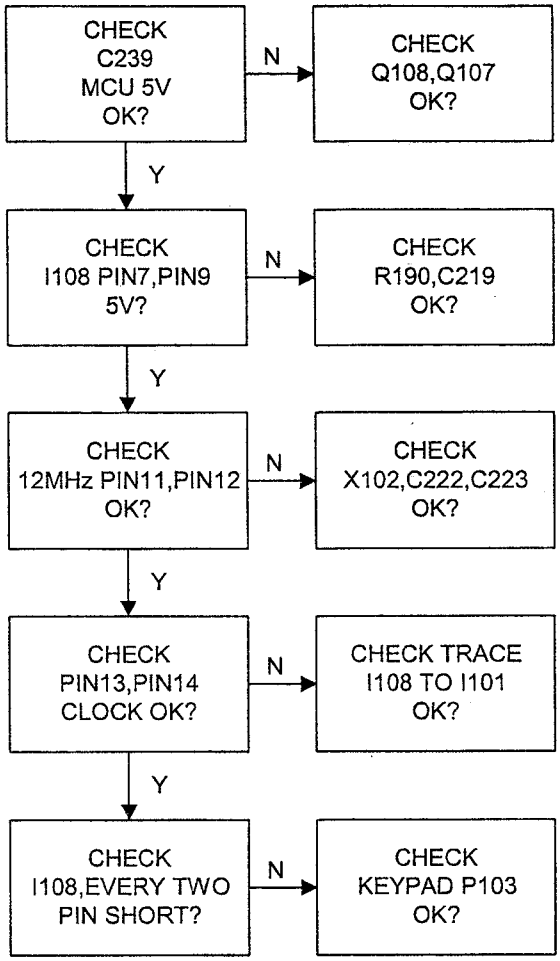
10. TROUBLE SHOOTING FLOW CHART

10.1. NO POWER

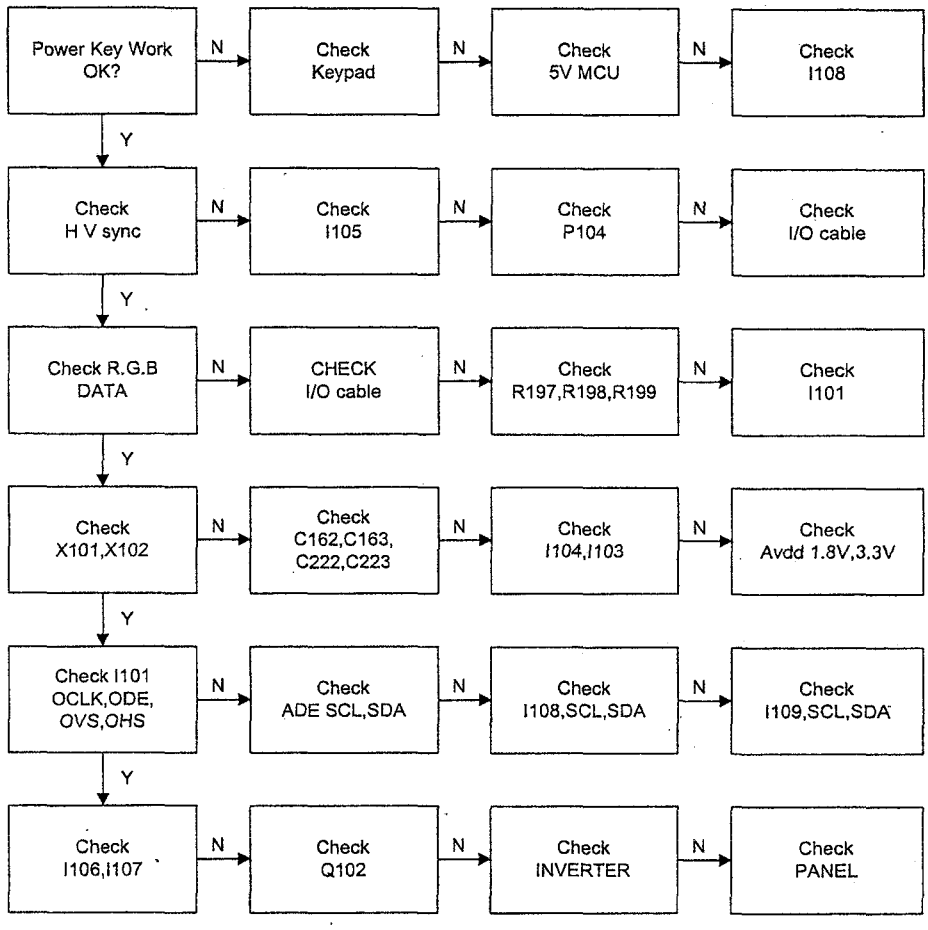




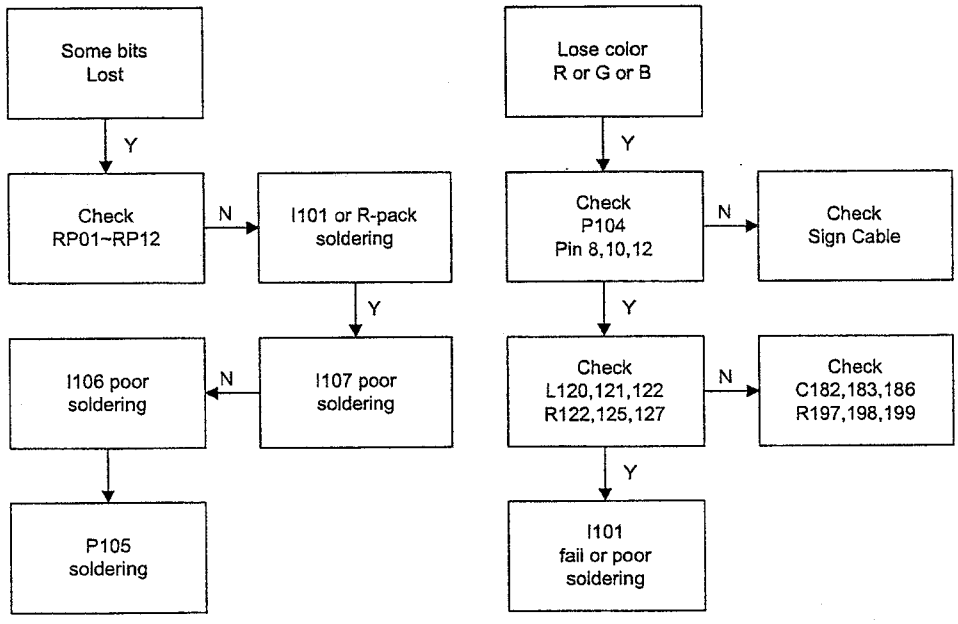
10.2. MCU NO FUNCTION



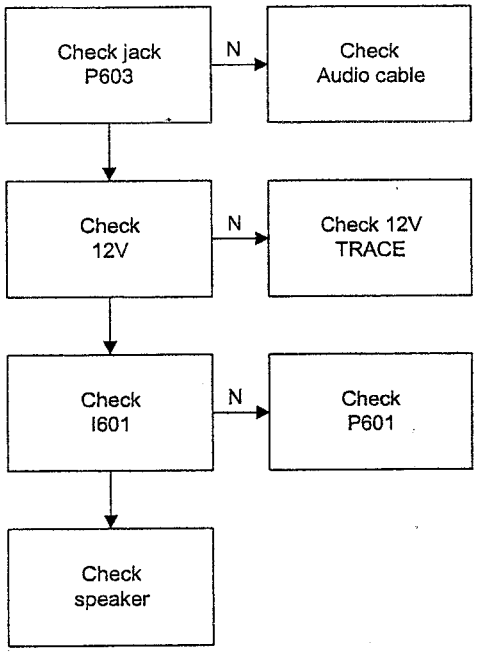
10.3. NO DISPLAY



10.4. LOSE COLOR



10.5. SPEAKER NO VOICE



11. ADJUSTMENT

11.1. ADJUSTMENT CONDITIONS AND PRECAUTIONS

1. Approximately 30 minutes should be allowed for warm up before proceeding.
2. Adjustments should be undertaken only on those necessary elements since most of them have been carefully preset at the factory.
3. ESD protection is needed before adjustment.

11.2. MAIN ADJUSTMENTS

NO.	FUNCTION	DESIGNATION
1.	WHITE BALANCE	FUNCTION KEY
2.	GEOMETRY	FUNCTION KEY

11.3. ALIGNMENT PROCEDURES

Adjustment Conditions and Precautions:

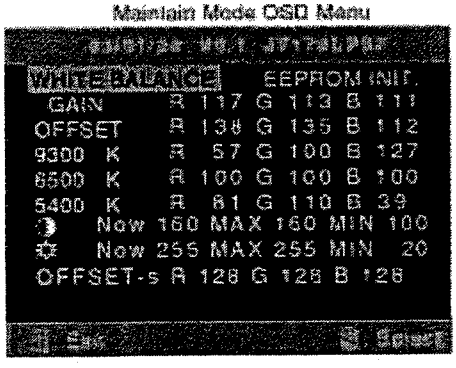
(A). Power supply voltage:
AC 110/120V± 10% 60 Hz± 5%, AC 220/240V± 10% 50 Hz± 5%.

(B). Warm up time:
The display must be power ON for at least 30 minutes at full white pattern before starting alignments.
This is especially critical in color temperature and white balance adjustments.

(C). Signals: reference the front detail specifications and timing table.
Video : reference the front detail specifications.

1. Adjustment of White Balance:

A. TIMING: 1280x1024 64KHz/60Hz.
B. PATTERN: 5 Blocks.
C. LCD MONITOR set to 1280x1024 80K/75Hz BURN IN and warm up over 30 minutes.
D. CA110 color analizer at the center of screen and along a perpendicular to the screen at 20cm from the display.
E. Power turn off, Press "▲" and "[2]" and turn on power at the same time after power LED ison, release "▼" and "[2]" key, Then press "[1]" key go to factory mode. (Fig.1)


Maintain Mode OSD Menu
WHITE BALANCE
EEPROM INIT.
GAIN R 117 G 113 B 111
OFFSET R 130 G 135 B 112
9300 K R 57 G 100 B 127
6500 K R 100 G 100 B 100
5400 K R 81 G 110 B 39
Now 160 MAX 160 MIN 100
Now 255 MAX 255 MIN 20
OFFSET-s R 128 G 128 B 128

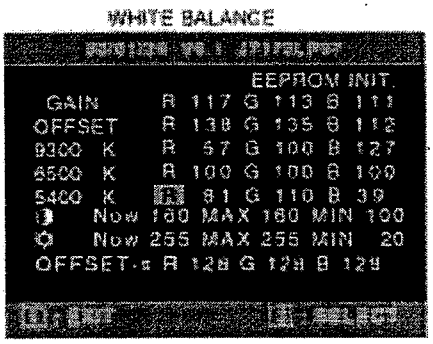
(Fig.1)

F. Adjust Color Temperature:

(1) EEPROM INIT (5 BLOCKS):
Press "▼" key move cursor to EEPROM INIT, Press [2] key then monitor will INIT ADC value.

(2) Press "▲" key move cursor to "White Balance", Press [2] key do white balance adjustment.

(3) Press "▼" key move cursor to "Color Temerature Adjust", Press [2] key, Then OSD will display Fig.2



(Fig.2)

(4) 9300K verify: move cursor to 9300K Press [2] key.
Press "▼" ,"▲" key adjust R.G.B value
x=0.283 ± 0.03
y=0.298 ± 0.03
Press [1] key return to Fig.2

(5) 6500K verify: Repeat (4) press "▼" ,"▲" move cursor to 6500K press [2] key
x=0.310 ± 0.03
y=0.330 ± 0.03
Y≧200 cd/m^2

(6) 5400K verify: Repeat (4) press "▼" ,"▲" move cursor to 5400K press [2] key
x=0.332 ± 0.03
y=0.348 ± 0.03

(7) Press [1] key go back to Fig.2, Then press [1] key return to Fig.1, Power key OFF/ON quit factory mode.

G. Color Temperature & Luminance Verify:
BRIGHTNESS MAX, CONTRAST MAX
9300K: x=0.283 ± 0.03 y=0.298 ± 0.03
6500K: x=0.310 ± 0.03 y=0.330 ± 0.03 Y≧200 cd/m^2
5400K: x=0.332 ± 0.03 y=0.348 ± 0.03

2. Geometry:

(a). Set cross-hatch pattern and preset timing as timing table listed.

(b). Change to each mode in turn and wait for the monitor finish auto-alignment and save process before change to next mode.

(c). Until all of modes are agjusted, exit OSD menu and press PWR OFF to exit factory mode.

12. ELECTRICAL PARTS LIST

When you place a parts order, be sure to indicate the following data on the order:

- Location No.
- Parts No.
- Description

MAIN P.C.BOARD

LOC NO.	SOURCE	PART NO.	DESCRIPTION	SPECIFICATION			REMARK
C101		2333347613	CAP,ELE 105'C	EC	47u/ 16V	5*11	P=2.5
C102		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C104		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C105		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C107		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C109		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C110		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C111		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C112		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C113		2346110296	CAP,CHIP 125'C	CS	0603/X7R/50V	1000p	K
C114		2346110396	CAP,CHIP 125'C	CS	0603/X7R/50V	0.01u	K
C115		2341110196	CAP,CHIP 125'C	CS	0603/COG/50V	100p	J
C116		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C117		2346110296	CAP,CHIP 125'C	CS	0603/X7R/50V	1000p	K
C118		2346110396	CAP,CHIP 125'C	CS	0603/X7R/50V	0.01u	K
C119		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C120		2346110396	CAP,CHIP 125'C	CS	0603/X7R/50V	0.01u	K
C121		2333347613	CAP,ELE 105'C	EC	47u/ 16V	5*11	P=2.5
C122		2333347613	CAP,ELE 105'C	EC	47u/ 16V	5*11	P=2.5
C123		2333347613	CAP,ELE 105'C	EC	47u/ 16V	5*11	P=2.5
C124		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C125		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C126		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C127		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C128		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C129		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C130		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C131		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C132		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C133		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C134		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C135		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C136		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C137		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C138		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C139		2333347613	CAP,ELE 105'C	EC	47u/ 16V	5*11	P=2.5
C140		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C141		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C142		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C143		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C144		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C145		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C146		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C147		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C148		2333347613	CAP,ELE 105'C	EC	47u/ 16V	5*11	P=2.5
C149		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C150		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C151		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C152		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C153		2346747496	CAP,CHIP 85'C	CS	0603/Y5V/16V	0.47u	Z
C154		2341110196	CAP,CHIP 125'C	CS	0603/COG/50V	100p	J
C155		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C156		2346747496	CAP,CHIP 85'C	CS	0603/Y5V/16V	0.47u	Z
C157		2341110196	CAP,CHIP 125'C	CS	0603/COG/50V	100p	J
C158		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z

LOC NO.	SOURCE	PART NO.	DESCRIPTION	SPECIFICATION			REMARK
C159		2346747496	CAP,CHIP 85'C	CS	0603/Y5V/16V	0.47u	Z
C160		2341110196	CAP,CHIP 125'C	CS	0603/COG/50V	100p	J
C161		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C162		2341122096	CAP,CHIP 125'C	CS	0603/COG/50V	22p	J
C163		2341122096	CAP,CHIP 125'C	CS	0603/COG/50V	22p	J
C164		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C166		2333333791	CAP,ELE 105'C	EC	330u/ 16V	8*11	P=5.0
C169		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C170		2333447791	CAP,ELE 105'C	EC	470u/ 25V	10*13.0	P=5.0
C171		2333347791	CAP,ELE 105'C	EC	470u/ 16V	10*12.5	P=5.0
C176		2333333791	CAP,ELE 105'C	EC	330u/ 16V	8*11	P=5.0
C177		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C178		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C179		2333347613	CAP,ELE 105'C	EC	47u/ 16V	5*11	P=2.5
C180		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C182		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C183		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C185		2341122096	CAP,CHIP 125'C	CS	0603/COG/50V	22p	J
C186		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C191		2341122096	CAP,CHIP 125'C	CS	0603/COG/50V	22p	J
C192		2341147096	CAP,CHIP 125'C	CS	0603/COG/50V	47p	J
C194		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C195		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C196		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C197		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C198		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C199		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C200		2346110396	CAP,CHIP 125'C	CS	0603/X7R/50V	0.01u	K
C201		2346110296	CAP,CHIP 125'C	CS	0603/X7R/50V	1000p	K
C202		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C203		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C204		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C205		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C206		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C207		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C208		2346110396	CAP,CHIP 125'C	CS	0603/X7R/50V	0.01u	K
C209		2346110296	CAP,CHIP 125'C	CS	0603/X7R/50V	1000p	K
C215		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C216		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C217		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C218		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C219		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C221		2341133096	CAP,CHIP 125'C	CS	0603/COG/50V	33p	J
C222		2341122096	CAP,CHIP 125'C	CS	0603/COG/50V	22p	J
C223		2341122096	CAP,CHIP 125'C	CS	0603/COG/50V	22p	J
C224		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C232		2347710696	CAP,CHIP 85'C	CS	0805/Y5V/10V	10u	Z
C233		2347610596	CAP,CHIP 85'C	CS	0805/Y5V/16V	1.0u	Z
C234		2347610596	CAP,CHIP 85'C	CS	0805/Y5V/16V	1.0u	Z
C238		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C239		2333347613	CAP,ELE 105'C	EC	47u/ 16V	5*11	P=2.5
C240		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C241		2333310613	CAP,ELE 105'C	EC	10u/ 16V	5*11	P=2.5
C243		2333610613	CAP,ELE 105'C	EC	10u/ 50V	5*11	P=2.5
D103		2364600196	DIODE,SWITCH SMD	LL4148 3.5X1.5ö TEMIC GS08			
D104		2364600196	DIODE,SWITCH SMD	LL4148 3.5X1.5ö TEMIC GS08			
D105		2364600196	DIODE,SWITCH SMD	LL4148 3.5X1.5ö TEMIC GS08			
D106		2364600196	DIODE,SWITCH SMD	LL4148 3.5X1.5ö TEMIC GS08			
D107		2364600196	DIODE,SWITCH SMD	LL4148 3.5X1.5ö TEMIC GS08			
D108		2364600196	DIODE,SWITCH SMD	LL4148 3.5X1.5ö TEMIC GS08			
D114		2364503996	DIODE,ZENER SMD	BZV55-C5V6		PHILIPS	
D115		2364503996	DIODE,ZENER SMD	BZV55-C5V6		PHILIPS	
D116		2364503996	DIODE,ZENER SMD	BZV55-C5V6		PHILIPS	
D117		2364503996	DIODE,ZENER SMD	BZV55-C5V6		PHILIPS	
D119	RA	2364201296	DIODE,RECT(SMD)	BAT54C-7	SOT-23	DII	

LOC NO.	SOURCE	PART NO.	DESCRIPTION	SPECIFICATION	REMARK
D119	RB	2364201896	DIODE,RECT(SMD)	BAT54C	CHENMKO SOT-23
D120		2364503996	DIODE,ZENER SMD	BZV55-C5V6	PHILIPS
I101		2365928496	IC,DIGITAL SMD	ADE3000SX PQFP208	ST
I103	RA	2365807496	IC,LINEAR(SMD)	AIC1084-33CM	AIC TO-263
I103	RB	2365810796	IC,LINEAR(SMD)	AP1084K33A(3.3V)	ATC TO-263
I104	RA	2365810896	IC,LINEAR(SMD)	AP1117DA(ADJ)	ATC TO-252
I104	RB	2365812096	IC,LINEAR(SMD)	AIC1117CE-ADJ	AIC TO-252
I105	RA	2365922496	IC,DIGITAL SMD	74LVC14A	PHILIPS SO14
I105	RB	2365921996	IC,DIGITAL SMD	SN74LVC14AD	TI
I106	RA	2365920096	IC,DIGITAL SMD	THC63LVDM83A	THINE
I106	RB	2365917996	IC,DIGITAL SMD	SN75LVDS83DGG	TI
I106	RC	2365926196	IC,DIGITAL SMD	NT7181CF TSSOP	NOVATEK
I106	RD	2365928896	IC,DIGITAL SMD	M385 TSSOP-56P	MRT
I107	RA	2365920096	IC,DIGITAL SMD	THC63LVDM83A	THINE
I107	RB	2365917996	IC,DIGITAL SMD	SN75LVDS83DGG	TI
I107	RC	2365926196	IC,DIGITAL SMD	NT7181CF TSSOP	NOVATEK
I107	RD	2365928896	IC,DIGITAL SMD	M385 TSSOP-56P	MRT
I108		2365928596	IC,DIGITAL SMD	MTV312MV64 PLCC44	MYSON
I109	RA	2365316200	IC,LINEAR	24LC16B DIP-8	MICROCHI
I109	RB	2365424300	IC,DIGITAL	M24C16-WBN6T	ST PDIP8
I109	RC	2365424000	IC,DIGITAL	AM24LC16(PDIP-8L)	ATC
L101		2379812156	BEAD,HI-IMPEDANCE	Z= 120ohm(1MHZ~) 0805	300mA
L102		2379812156	BEAD,HI-IMPEDANCE	Z= 120ohm(1MHZ~) 0805	300mA
L103		2379310166	BEAD,HI-IMPEDANCE	Z= 100ohm(50MHZ~) 0603	200mA
L106		2379560086	BEAD,HI-CURRENT	Z= 60ohm 1206 I>3.0A	
L107		2235547813	RES,MTL 2	RS 2WS 0.47ohm J P=15.0	
L110		2379812156	BEAD,HI-IMPEDANCE	Z= 120ohm(1MHZ~) 0805	300mA
L111		2379812156	BEAD,HI-IMPEDANCE	Z= 120ohm(1MHZ~) 0805	300mA
L112		2379812156	BEAD,HI-IMPEDANCE	Z= 120ohm(1MHZ~) 0805	300mA
L113		2379812156	BEAD,HI-IMPEDANCE	Z= 120ohm(1MHZ~) 0805	300mA
L114		2379860166	BEAD,HI-IMPEDANCE	Z= 600ohm(50MHZ~) 0805	200mA
L115		2379860166	BEAD,HI-IMPEDANCE	Z= 600ohm(50MHZ~) 0805	200mA
L116		2379860166	BEAD,HI-IMPEDANCE	Z= 600ohm(50MHZ~) 0805	200mA
L117		2379860166	BEAD,HI-IMPEDANCE	Z= 600ohm(50MHZ~) 0805	200mA
L118		2379860166	BEAD,HI-IMPEDANCE	Z= 600ohm(50MHZ~) 0805	200mA
L119		2379560086	BEAD,HI-CURRENT	Z= 60ohm 1206 I>3.0A	
L120		2253200096	RES,CHIP 1/10W	RC 0603 1/10W 0 ohm J T	
L121		2253200096	RES,CHIP 1/10W	RC 0603 1/10W 0 ohm J T	
L122		2253200096	RES,CHIP 1/10W	RC 0603 1/10W 0 ohm J T	
L123		2379560086	BEAD,HI-CURRENT	Z= 60ohm 1206 I>3.0A	
L127		2379812156	BEAD,HI-IMPEDANCE	Z= 120ohm(1MHZ~) 0805	300mA
L131		2379560086	BEAD,HI-CURRENT	Z= 60ohm 1206 I>3.0A	
L132		2379560086	BEAD,HI-CURRENT	Z= 60ohm 1206 I>3.0A	
P101		2404301107	CONNECTOR	JST PH 8P SIDE P=2.0 OR EQUAL	
P103		2404371007	CONNECTOR	JST PH 8P TOP P=2.0 OR EQUAL	
P104		2404301112	CONNECTOR	JST PH 13P SIDE P=2.0 OR EQUAL	
P105		2404222230	PIN PLUG	CH71302V1P3 P=2.0 30PIN CVILUX	
Q101	RA	2360301696	XISTOR,NPN R SMD	PMBS3904	PHILIPS SOT-23
Q101	RB	2360300896	XISTOR,NPN R SMD	MMBT3904	FAIRCHILD SOT-23
Q101	RC	2360301296	XISTOR,NPN R SMD	MMBT3904	DIODES SOT-23
Q102		2361211700	XISTOR,PNP A	KSB772 TO-126	FAIRCHILD
Q103	RA	2360301696	XISTOR,NPN R SMD	PMBS3904	PHILIPS SOT-23
Q103	RB	2360300896	XISTOR,NPN R SMD	MMBT3904	FAIRCHILD SOT-23
Q103	RC	2360301296	XISTOR,NPN R SMD	MMBT3904	DIODES SOT-23
Q104	RA	2360301696	XISTOR,NPN R SMD	PMBS3904	PHILIPS SOT-23
Q104	RB	2360300896	XISTOR,NPN R SMD	MMBT3904	FAIRCHILD SOT-23
Q104	RC	2360301296	XISTOR,NPN R SMD	MMBT3904	DIODES SOT-23
Q105	RA	2360100696	XISTOR,PNP R SMD	PMBS3906	PHILIPS SOT-23
Q105	RB	2360100596	XISTOR,PNP R SMD	MMBT3906	FAIRCHILD SOT-23
Q105	RC	2360100796	XISTOR,PNP R SMD	MMBT3906	DIODES SOT-23
Q106	RA	2360100696	XISTOR,PNP R SMD	PMBS3906	PHILIPS SOT-23
Q106	RB	2360100596	XISTOR,PNP R SMD	MMBT3906	FAIRCHILD SOT-23
Q106	RC	2360100796	XISTOR,PNP R SMD	MMBT3906	DIODES SOT-23
Q107	RA	2360100696	XISTOR,PNP R SMD	PMBS3906	PHILIPS SOT-23
Q107	RB	2360100596	XISTOR,PNP R SMD	MMBT3906	FAIRCHILD SOT-23

LOC NO.	SOURCE	PART NO.	DESCRIPTION	SPECIFICATION	REMARK
Q107	RC	2360100796	XISTOR,PNP R SMD	MMBT3906	DIODES SOT-23
Q108	RA	2360100696	XISTOR,PNP R SMD	PMBS3906	PHILIPS SOT-23
Q108	RB	2360100596	XISTOR,PNP R SMD	MMBT3906	FAIRCHILD SOT-23
Q108	RC	2360100796	XISTOR,PNP R SMD	MMBT3906	DIODES SOT-23
R102		2251215026	RES,CHIP 1/10	RC 0603 1/10W	15Kohm F
R104		2251215026	RES,CHIP 1/10	RC 0603 1/10W	15Kohm F
R106		2251215026	RES,CHIP 1/10	RC 0603 1/10W	15Kohm F
R110		2253200096	RES,CHIP 1/10W	RC 0603 1/10W	0 ohm J
R111		2253210596	RES,CHIP 1/10W	RC 0603 1/10W	1Mohm J
R113		2253210396	RES,CHIP 1/10W	RC 0603 1/10W	10Kohm J
R115		2253233196	RES,CHIP 1/10W	RC 0603 1/10W	330 ohm J
R116		2253233196	RES,CHIP 1/10W	RC 0603 1/10W	330 ohm J
R117		2253233196	RES,CHIP 1/10W	RC 0603 1/10W	330 ohm J
R118		2253233196	RES,CHIP 1/10W	RC 0603 1/10W	330 ohm J
R119		2253222296	RES,CHIP 1/10W	RC 0603 1/10W	2.2Kohm J
R120		2253256196	RES,CHIP 1/10W	RC 0603 1/10W	560 ohm J
R121		2251224906	RES,CHIP 1/10	RC 0603 1/10W	249 ohm F
R122		2251210006	RES,CHIP 1/10	RC 0603 1/10W	100 ohm F
R123		2253233196	RES,CHIP 1/10W	RC 0603 1/10W	330 ohm J
R124		2253222096	RES,CHIP 1/10W	RC 0603 1/10W	22 ohm J
R125		2251210006	RES,CHIP 1/10	RC 0603 1/10W	100 ohm F
R127		2251210006	RES,CHIP 1/10	RC 0603 1/10W	100 ohm F
R128		2251275096	RES,CHIP 1/10	RC 0603 1/10W	75 ohm F
R129		2251275096	RES,CHIP 1/10	RC 0603 1/10W	75 ohm F
R130		2251275096	RES,CHIP 1/10	RC 0603 1/10W	75 ohm F
R131		2253233196	RES,CHIP 1/10W	RC 0603 1/10W	330 ohm J
R132		2253222096	RES,CHIP 1/10W	RC 0603 1/10W	22 ohm J
R134		2253247096	RES,CHIP 1/10W	RC 0603 1/10W	47 ohm J
R135		2253210196	RES,CHIP 1/10W	RC 0603 1/10W	100 ohm J
R137		2253210196	RES,CHIP 1/10W	RC 0603 1/10W	100 ohm J
R138		2253210196	RES,CHIP 1/10W	RC 0603 1/10W	100 ohm J
R139		2253210396	RES,CHIP 1/10W	RC 0603 1/10W	10Kohm J
R140		2253210396	RES,CHIP 1/10W	RC 0603 1/10W	10Kohm J
R141		2253210396	RES,CHIP 1/10W	RC 0603 1/10W	10Kohm J
R142		2253200096	RES,CHIP 1/10W	RC 0603 1/10W	0 ohm J
R147		2253222096	RES,CHIP 1/10W	RC 0603 1/10W	22 ohm J
R148		2253222096	RES,CHIP 1/10W	RC 0603 1/10W	22 ohm J
R149		2253222096	RES,CHIP 1/10W	RC 0603 1/10W	22 ohm J
R151		2253222096	RES,CHIP 1/10W	RC 0603 1/10W	22 ohm J
R155		2253210296	RES,CHIP 1/10W	RC 0603 1/10W	1Kohm J
R156		2253222296	RES,CHIP 1/10W	RC 0603 1/10W	2.2Kohm J
R157		2253247296	RES,CHIP 1/10W	RC 0603 1/10W	4.7Kohm J
R158		2253247296	RES,CHIP 1/10W	RC 0603 1/10W	4.7Kohm J
R159		2253247296	RES,CHIP 1/10W	RC 0603 1/10W	4.7Kohm J
R165		2253210396	RES,CHIP 1/10W	RC 0603 1/10W	10Kohm J
R167		2253210396	RES,CHIP 1/10W	RC 0603 1/10W	10Kohm J
R168		2253210496	RES,CHIP 1/10W	RC 0603 1/10W	100Kohm J
R169		2253210396	RES,CHIP 1/10W	RC 0603 1/10W	10Kohm J
R175		2253247296	RES,CHIP 1/10W	RC 0603 1/10W	4.7Kohm J
R176		2253247296	RES,CHIP 1/10W	RC 0603 1/10W	4.7Kohm J
R177		2253210296	RES,CHIP 1/10W	RC 0603 1/10W	1Kohm J
R178		2253233296	RES,CHIP 1/10W	RC 0603 1/10W	3.3Kohm J
R179		2253233296	RES,CHIP 1/10W	RC 0603 1/10W	3.3Kohm J
R181		2253210596	RES,CHIP 1/10W	RC 0603 1/10W	1Mohm J
R182		2253233296	RES,CHIP 1/10W	RC 0603 1/10W	3.3Kohm J
R183		2253233296	RES,CHIP 1/10W	RC 0603 1/10W	3.3Kohm J
R185		2253268196	RES,CHIP 1/10W	RC 0603 1/10W	680 ohm J
R186		2253268196	RES,CHIP 1/10W	RC 0603 1/10W	680 ohm J
R187		2253200096	RES,CHIP 1/10W	RC 0603 1/10W	0 ohm J
R188		2253200096	RES,CHIP 1/10W	RC 0603 1/10W	0 ohm J
R190		2253210196	RES,CHIP 1/10W	RC 0603 1/10W	100 ohm J
R192		2253233296	RES,CHIP 1/10W	RC 0603 1/10W	3.3Kohm J
R193		2253233296	RES,CHIP 1/10W	RC 0603 1/10W	3.3Kohm J
R194		2253233296	RES,CHIP 1/10W	RC 0603 1/10W	3.3Kohm J
R195		2253233296	RES,CHIP 1/10W	RC 0603 1/10W	3.3Kohm J